Docket No.: 06005/38043A
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Ashish Mehta et al.

Application No.: 10/627,362

Confirmation No.: 2461

Filed: July 25, 2003

Art Unit: 2122

For: INTEGRATED MODEL PREDICTIVE
        CONTROL AND OPTIMIZATION WITHIN
        A PROCESS CONTROL SYSTEM

Examiner: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO-1449 Form. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed before the mailing date of a first Office Action on the merits as far as is known to the undersigned (37 CFR 1.97(b)(3)).

This application was filed after June 30, 2003. In compliance with the procedures for implementing the Image File Wrapper (IFW) system the U.S. Patent references identified on the enclosed PTO-1449 form are **not** included herewith. However, applicants are happy to provide these references upon request.

A copy of the foreign patent document on the PTO-1449 form is attached. Pursuant to 37 C.F.R. 1.97(d)(1) copies of the references on the PTO-1449 form under the

"Other Documents" heading are not attached because they were previously cited by or submitted to the Office in prior application No. 10/241,350, filed September 11, 2002 and relied upon in this application for an earlier filing date under 35 U.S.C. 120.

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. In accordance with 37 CFR 1.97(h), the filing of this Information Disclosure statement shall not be construed to be an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 13-2855, under Order No. 06005/38043A. A duplicate copy of this paper is enclosed.

Dated: March 29, 2004   Respectfully submitted,

                                         By _____
                                         Gregory E. Stanton
                                            Registration No.: 45,127
                                         MARSHALL, GERSTEIN & BORUN LLP
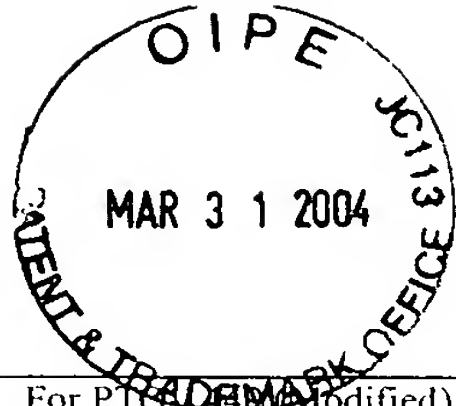   233 S. Wacker Drive, Suite 6300
                                         Sears Tower
                                         Chicago, Illinois 60606-6357
                                         (312) 474-6300
                                         Attorney for Applicant

For PTO (GEM Modified)

U.S. Department of Commerce
Patent and Trademark Office

Atty. Docket No. 06005/38043A	Serial No. 10/627,362

INFORMATION DISCLOSURE STATEMENT

Applicanta Ashish Mehta et al.	
Filing Date July 25, 2003	Group 2122

U.S. PATENT DOCUMENTS

*Examiner Initials		Patent Number	Issue Date	Name	Class	Subclass	Filing Date if Appropriate
	1	4,054,408	10/18/77	Sheffield et al.	431	12	
	2	4,349,869	09/14/82	Prett et al.	364	159	
	3	4,616,308	10/07/86	Morshedi et al.	364	159	
	4	5,351,184	09/27/94	Lu et al.	364	165	
	5	5,561,599	10/01/96	Lu	364	164	
	6	5,933,345	08/03/99	Martin et al.	364	164	
	7	6,047,221	04/04/00	Piche et al.	700	44	
	8	6,278,899	08/21/01	Piche et al.	700	44	10/06/98
	9	6,445,963 B1	09/03/02	Blevins et al.	700	44	10/04/99
	10	6,487,459	11/26/02	Martin et al.	700	44	02/16/99

FOREIGN PATENT DOCUMENTS

*Examiner Initials		Document Number	Publication Date	Country	Class	Subclass	Translation	
							Yes	No
	11	GB 2 355 545	04-25-2001	United Kingdom				

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	12	Thiele et al., "Configuration and Viewing Display for an Integrated Model Predictive Control and Optimizer Function Block," U.S. Serial No. 10/310,416, filed December 5, 2002.
	13	Qin, S.J. and Badgwell, T.A., "An Overview of Industrial Model Predictive Control Technology," Fifth International Conference on Chemical Process Control, pages 232-256, AIChE and CACHE, 1997.
	14	Jan M. Maciejowski, "Model Predictive Control with Constraints," Pearson Education Limited, Appendix A, Appendix B, 2002.
	15	C. Rao, S. Wright, and J. Rawlings, "Application of Interior-Point Methods to Model Predictive Control," J. Optim. Theory Appl., 99:723-757, 1998.
	16	Willy Wojsznis, Terrence Blevins and Mark Nixon, "Easy Robust Optimal Predictive Controller," Advances in Instrumentation and Control, ISA/2000 Conference, August 2000, New Orleans.
	17	W. Wojsznis, J. Gudaz, A. Mehta, and T. Blevins, "Practical Approach to Tuning MPC," in Proceedings of ISA 2001 Conference, September 10-13, 2001, Houston, TX.
	18	Thiele, D. and Ottenbacher, R., "Simulation of Multivariable Model Predictive Control," in Proceedings of ISA 2001 Conference, Sept. 10-13, 2001, Houston, TX.
	19	"DeltaV Predict and DeltaV PredictPro - Powerful Practical Model Predictive Control," Product data sheet, June 2003.

	20	Dirk Thiele, "Benefits and challenges of implementing model predictive control as a function block," Advances in Instrumentation and Control, ISA/2000 Conference, August 2000, New Orleans.
	21	Garcia, C.E., and A.M. Morshedi, "Quadratic Programming Solution of Dynamic Matrix Control (QDMC)," Chemical Engineering Communications, 46:73-87, 1986.
	22	C.R. Cutler, and B.L. Ramaker, "Dynamic Matrix Control - A Computer Control Algorithm," Proceedings of the Joint Automatic Control Conference, 1980.
	23	Chmelyk, T.T., "An Integrated Approach to Model Predictive Control of an Industrial Lime Kiln," NORPAC Controls Ltd.
	24	MDC Technology, "RTO Technical Presentation."
	25	Dynamic Matrix Control Corporation, "DMC Multivariable Model Predictive Constraint Control."
	26	Garcia, C.E., Prett, D.M., and Morari, M., "Model Predictive Control: Theory and Practice - a Survey," Automatica, Vol. 25, No. 3, pp. 335-348, 1989.
	27	Froisy, J.B., "Model predictive control: Past, present and future," ISA Transactions 33:235-243, 1994.
	28	Lee, J.H., Morari, M., and Garcia, C.E., "State-space Interpretation of Model Predictive Control," Automatica, Vol. 30, No. 4, pp. 707-717, 1994.
	29	Rawlings, J.B., Muske, K.R., "Model Predictive Control with Linear Models," Process Systems Engineering, Vol. 39, No. 2, February 1993.
	30	Wojsznis, W.K., Wojsznis, P.W., "Robust Predictive Controller in Object-Oriented Implementation," ISA, Paper No. 93-297, pp. 521-528, 1993.
	31	Lee, J.H., Yu, Z.H., "Tuning of Model Predictive Controllers for Robust Performance," Computers in Chemical Engineering, Vol. 18, No. 1, pp.15-37, 1994.
	32	MacArthur, J.W., "RMPCT: A New Robust Approach to Multivariable Predictive Control for the Process Industries," Proceedings of the 1996 Control Systems Conference, Halifax, Canada, 1996.
	33	Shridhar, R., Cooper, D.J., "A Novel Tuning Strategy for Multivariable Model Predictive Control," ISA Transactions, Vol. 36, No. 4, pp. 273-280, 1998.
	34	Babb, Michael, "Fast Computers Open the Way For Advanced Controls," Control Engineering, January 1991.
	35	McDonnell, M., Abu el Ata-Doss, S., "Predictive Functional Control of Multivariable Systems with more Outputs than Inputs," Proceedings 28 CDC, Orlando, Florida, 1989.
	36	Morari, M., Ricker, N.L., and Zafiriou, E., "Model Predictive Control Toolbox," Matlab® User's Guide, Version 1, The Math Works, Inc. 1995.
	37	De Keyser, R.M.C., Van de Velde, Ph.G.A., and Dumortier F.A.G., "A Comparative Study of Self-Adaptive Long-Range Predictive Control Methods," Automatica, Vol. 24, No. 2, pp. 149-163, 1988.
	38	Rumbaugh, J., "Let There Be Objects: A Short Guide to Reification," Journal of Object-Oriented Programming, Vol. 5, No. 7, November/December 1992.
	39	Lynch, P.M., De Paso, J., "An Object Oriented Intelligent Control Architecture," 1992 ACC/TP4, Vol. 3, 92CH3072-6, Chicago.

Examiner	Date Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.